

What is claimed is:

- 5 1. Method for monitoring a process, comprising:

repeatedly acquiring at least two different pieces of
information of the process;

performing a main component transformation due to the
10 acquired information without using information
acquired prior to the monitoring method, for
calculating a main component measurement vector in a
main component space;

15 calculating a process indicator quantity by using the
calculated main component measurement vector and one
or several previously calculated main component
measurement vectors; and

20 detecting a process end by using the process indicator
quantity.
2. Method according to claim 1, where the process is a
discontinually running process.
- 25 3. Method according to claim 1, where the step of
repeatedly acquiring comprises acquiring of at least
two different measurement data of the process.
- 30 4. Method according to claim 1, where the step of
performing a main component transformation further
comprises the step of selecting the acquired
information to perform a main component transformation
merely for the selected information.
- 35 5. Method according to claim 1, where the step of
performing a main component transformation further
comprises averaging the acquired information for

generating average value information, which is used in the main component transformation.

- 5 6. Method according to claim 1, where the step of calculating a process indicator quantity comprises calculating the quantity and/or direction of a difference vector, which is formed from the calculated main component measurement vector and a previous main component measurement vector.
- 10 7. Method according to claim 1, where in the step of detecting a process end, the end of the process is indicated when a predetermined number of process indicator quantities are in a predetermined indicator
- 15 area.
- 20 8. Method according to claim 1, further comprising the step of intervening into a running process when an end of the running process is detected in the step of detecting a process end.
- 25 9. Apparatus for monitoring a running process, comprising:
acquisition means for repeatedly acquiring at least two different pieces of information of the process;
means for performing a main component transformation due to the acquired information, whereby a main
30 component measurement vector is calculated in a main component space; and
evaluation means for calculating a process indicator quantity by using a calculated main component
35 measurement vector and one or several previously calculated main component measurement vectors, wherein the evaluation means is further formed to detect an

end of the process by using the process indicator quantity.

5 10. Apparatus according to claim 9, where the acquisition means comprises one or several sensors, which are selected from the group comprising an optical sensor, a capacitive sensor, an amperometrical sensor, a temperature sensor and a chemical sensor.

10 11. Apparatus according to claim 9, where the means for performing a main component transformation is further formed to make a selection from the acquired information of the process, so that a main component transformation is performed merely for the selected
15 information of the process.

12. Apparatus according to claim 9, where the means for performing a main component transformation is further formed to perform a main component transformation by
20 using average value information, which is formed by averaging the acquired information of the process.

13. Apparatus according to claim 9, where the evaluation means is formed to calculate the process indicator
25 quantity by using a spacing of the calculated main component measurement vector from a previous main component measurement vector and/or a direction of the difference vector from the calculated vector and a previous vector.

30 14. Apparatus according to claim 13, where the process indicator quantity is calculated from the absolute values of the spacing and the direction of the difference vector.

35 15. Apparatus according to claim 9, where the acquisition means is formed to acquire transient measurement signals.

16. Apparatus according to claim 15, where the transient measurement signals comprise a spectrum or a temperature signal.
- 5 17. Apparatus according to claim 9, where the acquisition means is formed to acquire time series information.
- 10 18. Apparatus according to claim 9, where the acquisition means is formed to acquire at least two different parameters of different dimensional characteristics, and wherein the means for performing a main component transformation is performed to perform a multi-stage main component transformation due to the at least two
15 different parameters of different dimensional characteristics.
- 20 19. Apparatus according to claim 9, which further comprises a control means to intervene in the running process when an end of the process is detected by the evaluation means.